American River Watershed,
Folsom Dam Safety/Flood Damage Reduction Project

Purpose:

The purpose of the Folsom Dam Safety/Flood Damage Reduction (DS/FDR) Project is to provide a higher level of dam safety and flood protection for the City of Sacramento and surrounding area by modifying Folsom Dam. The U.S. Army Corps of Engineers (Corps) reports that the Sacramento urban area is the largest community in the United States exposed to such a high risk of catastrophic flooding. This project combines the goals and efforts of the Folsom Dam Raise Project, the Folsom Dam Modifications Project, and the Bureau of Reclamation's Dam Safety Remediation Project. The Folsom DS/FDR Project together with other American River Watershed flood control projects reduces the risk for the Sacramento area to a less than 1-in-172 chance of flooding in any given year and will provide protection up to the 220 year design flood event.

Location:

Folsom Dam on the American River near the City of Folsom

Description:

Previous studies of the American River Basin have determined that, in the absence of a comprehensive long-term plan for a high level of flood protection, the City of Sacramento is at risk for rapid and deep flooding which could cause up to $40 billion in property damages. Many lives are at risk, with associated risk to commerce, regional transportation, regional and State government, and long-term contamination of lands from toxic and hazardous wastes. The flood risk is further compounded by the basins' short flood warning time, currently estimated to be in the range of six to nine hours.

The American River Watershed Long-Term Study culminated with the completion of an Integrated Final Supplemental Plan Formulation Report/Environmental Impact Report/Environmental Impact Statement (EIR/EIS). This document was completed in February 2002, and recommends a seven-foot raise of Folsom Dam. The Corps' Chief of Engineers subsequently recommended this alternative to Congress. In winter 2003, Congress authorized construction of a seven-foot raise as described in the Chief of Engineers' Report.

Subsequent studies undertaken by the Project partners known collectively as the PASS studies (Project Alternatives Solution Study; I/II/Optimization) determined that the objectives for Folsom Dam flood damage reduction and dam safety could be met with a new auxiliary spillway and a smaller three and one half foot dam raise together with the replacement of three emergency spillway gates on the dam. The auxiliary spillway became known as the Joint Federal Project and will be cost shared between the U.S. Bureau of Reclamation (Reclamation), the Corps, the Reclamation Board (Board) and local partners. In addition to paying a share of the joint federal project, the Board will cost share with the Corps in the development of a three and one half foot dam raise and replacement of the emergency spillway gates at the Dam.

Sponsors:

Federal: U.S. Army Corps of Engineers and U.S. Bureau of Reclamation
State: The Reclamation Board
Local: Sacramento Area Flood Control Agency
Other: Central Valley Project (CVP) Water Users

Maintenance Entities:

The Bureau of Reclamation will be responsible for operation of the new flood control features and will enter into a cost-sharing agreement with SAFCA. SAFCA will pay for the increased flood damage reduction component of operation and maintenance costs.

Elected Representatives:

Federal:

- House of Representatives - Dan Lundgren (District 3), John Doolittle (District 4), Richard Pombo (District 11), Doris Matsui (District 5)

- Senate - Barbara Boxer and Dianne Feinstein

State:

- Senate - Dave Cox (District 1), Michael Machado (District 5), Deborah Ortiz (District 6)

- Assembly - Tim Leslie (District 4), Roger Niello (District 5), Alan Nakanishi (District 10),

Authorization:

Federal: Pending, WRDA bill expected in 2007. The work may be authorized as an expansion to the Folsom Dam Raise and Folsom Dam Modification project authorizations.

State: Pending

Status:

Geotechnical exploration work is continuing and the Bureau of Reclamation, under expedited authority to alleviate dam safety deficiencies at Folsom Dam, is developing the preliminary design for the first phase of spillway excavation for Folsom Dam. The project environmental documents are nearly complete and are expected to be available for public review on December 1, 2006. The Bureau of Reclamation will be submitting a Project Modification Report to Congress soon thereafter. The Corps will be submitting a Project Authorization Change Report and Engineering Documentation Report to Congress also on December 1, 2006. The Bureau of Reclamation's and the Corps' Record of Decisions (ROD) for the project are expected in early 2007.

The Corps has estimated two years of hydrologic and hydraulic modeling studies will be required to design all elements of the DS/FDR Project. The Corps will undertake the

second phase of spillway excavation, the design and construction of six submerged tainter gates at the top of the spillway, as well as energy dissipation and stilling basin modifications for the work. The Corps will also undertake the design of a three and one half foot dam raise and the design of replacement emergency spillway gates at the Dam.

Estimated Costs:

Under development by the Corps, recent estimates are in the range of $800 million to $1.3 billion.

Estimated Benefits:

Based on the administrative draft Post Authorization Change Report (PAC), average annual net benefits are about $56 million. The benefit to cost ratio is 2.13. Project benefits will be finalized and presented in the Corps PAC report in December 2006.

Cost Allocation:

Dam safety costs for the project are paid solely by the federal government and CVP water users. Flood damage reduction and environmental restoration will be cost shared with the federal government paying a maximum of 65 percent and the nonfederal sponsors paying a minimum of 35 percent. For flood damage reduction, the nonfederal sponsors will be the Board and SAFCA.2222

Funding Status:

Federal: The work is being funded by the Folsom Dam Raise and Folsom Dam Modification Projects.

State: The work is being funded by the Folsom Dam Modification Project.

Construction Schedule:

Construction of the project will take place over many years. Construction is estimated to begin in late 2007 and continue until 2014.

Right of Way Certification Schedule:

No schedule available yet.

Reclamation Board Actions:

None to date.

Issues/Concerns:

Project Authorization

Both federal and State authorization are required to proceed. Federal authorization is expected through a WRDA bill in 2007. The form of the authorization could make this project a stand alone effort or expand one or both of the prior authorizations (Folsom Dam Raise/Folsom Dam Modification) to complete some or all of the work. State authorization cannot proceed until the fundamental structure of the federal authorization is sorted out.

Need for a Dam Raise and Cost Allocation

The original project authorization documents showed that raising Folsom Dam up to seven feet was necessary to meet dam safety standards and to achieve flood protection goals for Sacramento. More recent analyses suggest that these objectives may be met by raising the dam from zero to three and one half feet. The bulk of the flood damage protection goals of the project will be met by constructing an auxiliary spillway under the joint federal project. The spillway will likely be constructed as part of the Folsom Dam Modifications and/or the Joint Federal Project. The degree to which dam safety and flood damage reduction benefits are attributed to the spillway and/or a small dam raise will shift the allocation of costs for the project between the nonfederal sponsors and the federal government. It may be several years before the correct allocation of costs is known.

Cost Escalation

Preliminary (unreleased) cost figures produced by SAFCA and the Corps suggest that the potential for cost escalation is high. The project must meet minimum benefit/cost standards to remain viable.

Cost Accounting

The Corps has been incurring costs in the planning and design of the Folsom Dam Raise Project for many years and they will seek reimbursement of these costs after the Project moves to the construction phase. These costs will need to be sufficiently documented by the Corps and reviewed by Board staff prior to payment. Additionally, all costs incurred after federal authorization need to broken out by the different elements. For example, current work on the Folsom Permanent Bridge needs to be tracked separately because it is not a part of the project cost, and the State does not have a financial obligation associated with the permanent bridge.

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